

Petitioner's Reply to Patent Owner's Preliminary Response
IPR2023-01069
U.S. Patent No. 10,590,189

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG BIOEPIS CO., LTD.,
Petitioner

v.

ALEXION PHARMACEUTICALS, INC.,
Patent Owner

Case IPR2023-01069
U.S. Patent No. 10,590,189 B2

**PETITIONER'S REPLY TO
PATENT OWNER'S PRELIMINARY RESPONSE**

Samsung respectfully submits this preliminary reply to address Alexion's arguments under §§ 314(a) and 325(d). (Paper 6 ("POPR"), 17-31; EX3001.) Under *Advanced Bionics*, the Board considers (1) whether the same or substantially the same art or arguments were presented during the original prosecution, and if so, (2) whether the Examiner materially erred. (See Paper 2 ("Pet."), 64-74.)

I. Samsung's Petition and Grounds Differ from the Amgen IPRs

Alexion asserts that submission of Amgen's IPRs during prosecution of the '189 and '809 related patents is sufficient to satisfy the first element of *Advanced Bionics* for all references in Samsung's Grounds. (POPR, 22-23.) This argument fails because the Examiner did not address, and thus did not properly evaluate, either Tacke or Mueller PCT in the Office Action or Reasons for Allowance, despite Tacke's express teaching that eculizumab contains the IgG2/G4 constant region, and Mueller PCT's disclosure of that sequence. (Pet., 71-73; EX1003, ¶¶180-181.) See, e.g., *Bowtech, Inc. v. MCP IP, LLC*, IPR2019-00379, Paper 14, 18-19 (July 3, 2019) ("We have consistently held that a reference that was neither applied against the claims nor discussed by the Examiner does not weigh in favor of exercising our discretion under § 325(d).") (collecting cases).

Alexion also mischaracterizes Samsung's newly-presented obviousness Grounds, stripping out Tacke and then arguing the remaining "basic combinations"

are the same as in the Amgen IPR. (POPR, 23-24.) Notwithstanding Alexion's misleading characterization of Samsung's Grounds 1 and 2, they plainly do include Tacken. Since none of Amgen's IPR grounds included Tacken, Samsung's Grounds were not considered during prosecution of the '189 patent. (*Compare* Pet., 4, *with*, e.g., EX1024, 10.) The Petition is also based on new arguments supporting obviousness rationales and expert testimony that was not previously of record. (*See*, e.g., Pet., 52-54; EX1003, ¶¶109-163); *see also* *Boehringer Ingelheim Int'l GMBH v. Abbvie Biotech. Ltd.*, IPR2016-00409, Paper 9, 8 (July 7, 2016); *Fellowes, Inc. v. Treefrog Devs., Inc.*, IPR2020-01435, Paper 12, 19-20 (Feb. 22, 2021).

The Petition thus does not present “the same or substantially the same” arguments as Amgen's IPRs. Even if the first element of *Advanced Bionics* were satisfied here, institution is warranted because the Examiner clearly erred as explained below. *See*, e.g., *Whitewater W. Indus. v. Am. Wave Machs.*, IPR2022-01034, Paper 8, 34-36 (Nov. 22, 2022) (Finding Examiner error because Petitioner persuasively showed at the institution stage that the prior art, even though disclosed during prosecution, taught “the very limitations that were purportedly found to be missing in the prior art.”); *Samsung Elecs. v. G+ Commc'ns*, IPR2022-01598, Paper 10, 13-16 (Apr. 4, 2023).

II. The Examiner Erred Materially During Prosecution of the '189 Patent

The second element of *Advanced Bionics*, applying *Becton Dickinson* factors (c), (e), and (f), is not satisfied because of multiple material errors by the Examiner during prosecution of the '189 patent. Alexion argues that the Petition “presents no evidence that Examiners [] did not ‘appreciate Tacken’s and Mueller PCT’s disclosure’ other than an observation that those references were not cited in an Office Action or Notice of Allowance.” (POPR, 28-29.) But, as Dr. Ravetch explains, Tacken and Mueller PCT teach the very thing that the Examiner mistakenly concluded was missing from the prior art—that eculizumab contains the IgG2/G4 constant domain. (Pet., 66-68; EX1003, ¶¶171-172.) Had the Examiner appreciated Tacken’s and Mueller PCT’s disclosure he could not have reasonably concluded such information was missing from the prior art. The failure to acknowledge this key disclosure shows that the Examiner must have overlooked or misunderstood specific teachings of the relevant prior art. *See, e.g., Adv. Energy Indus. v. Reno Techs.*, IPR2021-01397, Paper 7, 7-9 (Feb. 16, 2022); *Adv. Bionics*, Paper 6, 10.

The Examiner’s errors can be traced back to Alexion’s repeated misrepresentation of the art. For example, Alexion represented that “the literature as of March 15, 2007 ... consistently identified ‘eculizumab’ as the antibody described in the ‘Thomas’ publication,’ ... which has a naturally-occurring ‘IgG4’

heavy chain constant region,” ignoring that the Tacke article, published in 2005 by its own employees, expressly discloses that eculizumab contains an IgG2/G4 isotype. (Pet., 67-68, EX1003, ¶172.) Alexion's Response repeats this misrepresentation and ignores the explanation by the Petition and Dr. Ravetch of why a POSA, by 2007, would not have been misled by citations to Thomas, because of Tacke. (Pet., 11-13, 28-29, 39-40, 57-58; *see also* EX1003, ¶¶110, 128, 160.)

The Examiner erred in a second critical way by relying on Alexion's misleading alignment of Evans' 5G1.1 *mouse* antibody variable regions with Bowdish's sequence rather than using Evans' 5G1.1 *humanized* variable region in his reasons for allowance. (Pet., 68-71; EX1002, 14874-75; EX1003, ¶¶173-174.) The Examiner also evidently relied on Alexion's mischaracterization that Evans discloses “multiple options” for heavy chain CDR3 sequence, when in fact Evans discloses a single unique HCDR3 sequence. (Pet., 70-72; EX1003, ¶¶175-176.) Alexion's Response does not meaningfully rebut Samsung's arguments showing that Alexion's characterizations of the art were inaccurate, but instead simply concludes that the Examiner must not have committed error because the claims were allowed. (POPR, 27.) The Examiner also erred by misapprehending the many reasons why Alexion's secondary considerations evidence failed and by overlooking Wang's disclosures of dosing and formulation limitations. (Pet., 72-74; EX1003, ¶¶177-

179.) Samsung's extensive showing of Examiner error in these cases is thus markedly different from cases where institution was denied under § 325(d) because Petitioner had failed to show Examiner error. *Cf. Ivantis, Inc. v. Sight Sciences, Inc.*, IPR2022-01540, Paper 14, 13-14 (Mar. 22, 2023); *Google LLC v. Valtrus Innovations Ltd.*, IPR2022-01197, Paper 18, 19-24 (June 13, 2023).

III. The *Advanced Bionics* Factors Are Also Not Satisfied by the Prosecution History of Earlier-Issuing Family Member Patents

Alexion also argues that Samsung's art and arguments were previously presented during prosecution of earlier-issuing related patents (concurrently challenged by Samsung) and that the Examiner in those cases did not err. Not so.

Alexion does not dispute that Bowdish and Mueller PCT were never cited during the earlier patents. (POPR, 17-22.) Instead, it argues that citation of related references, US7,482,435 (parent of Bowdish) and Mueller 1997, is enough to satisfy the first element of *Advanced Bionics*. (*Id.*, 18 & 19 n.8.) But Alexion's conclusory statements do not explain how these references are substantially the same as Bowdish and Mueller PCT, respectively. Neither reference was cited, discussed, or relied on as the basis for any rejection in the prosecution of the earlier patents. Mueller PCT is not cumulative to Mueller 1997. (*Id.*, 18 n.7.) Mueller PCT discloses the complete IgG2/G4 constant domain of eculizumab, Mueller 1997 does not. (Pet., 37; EX1003, ¶124; *see also Samsung Bioepis Co. v. Alexion Pharms.*,

Inc., IPR2023-00999, Paper 2, 67-68, 68 n.6.) The references are thus not “the same or substantially the same” under *Becton* factors (a) and (b). *See, e.g., Masimo v. Apple*, IPR2023-00734, Paper 11, 14-20 (Oct. 5, 2023).

As to error, in each of the three earlier-to-issue patents in the family, the Examiner erred by finding that “none of the art recited an antibody with a heavy chain consisting of SEQ ID NO: 2 and a light chain consisting of SEQ ID NO: 4” and that “SOLIRIS[®] and its unique sequence was not ‘accessible to the public’ as of March 15, 2007.” This was error given: (1) Tacke’s disclosure that eculizumab contains an IgG2/G4 constant domain, (2) Mueller PCT’s disclosure of the sequences for the constant regions of SEQ ID NOS:2 and 4, and (3) Bowdish’s disclosure of the sequence for antibody 5G1.1, including the complete sequence for IgG2/G4 constant domain claimed in SEQ ID NO:2. (Pet., 28-44; *see also* IPR2023-00999, Paper 2, 69-70.) Further, the Examiner’s finding that a POSA “would not have been easily guided to mak[e] antibodies with these recited sequences” fails to consider the multiple enabling routes in the prior art to make the exact eculizumab antibody that is recited as SEQ ID NOS:2 and 4 including the integrated disclosures of Bowdish and Evans which teach the same; the Examiner also overlooked the teachings of Wang regarding doses and formulations. (*Id.* at 18.)

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify, pursuant to 37 C.F.R. Section 42.6, that a complete copy of the attached **PETITIONER'S REPLY TO PATENT OWNER'S PRELIMINARY RESPONSE** and related documents, are being served via electronic mail on November 10, 2023, upon Patent Owner by serving Patent Owner's counsel of record in this proceeding as follows:

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DATED: November 10, 2023

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